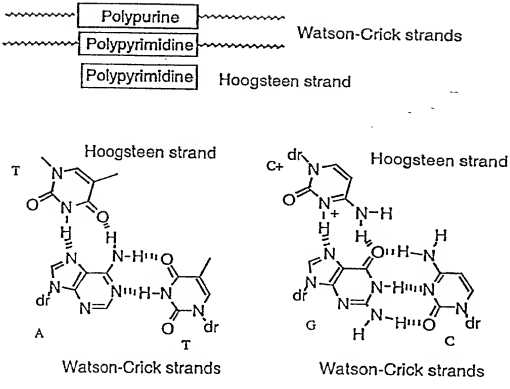

Polypurine
Polypyrimidine
Watson-Crick strands
Polypyrimidine
Hoogsteen strand
Hoogsteen strand
T
A
T
Watson-Crick strands
C+
Hoogsteen strand
G
C
Watson-Crick strands

FIGURE 1

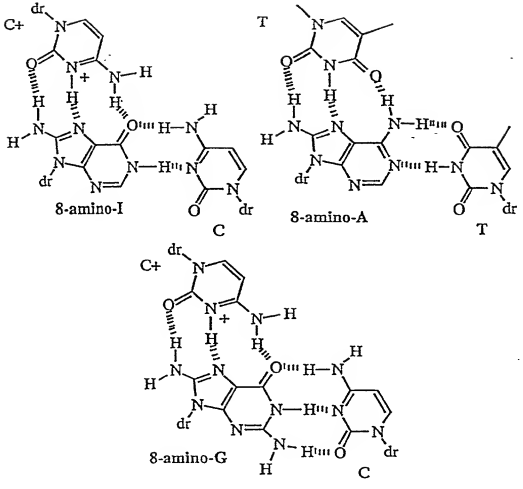


FIGURE 2

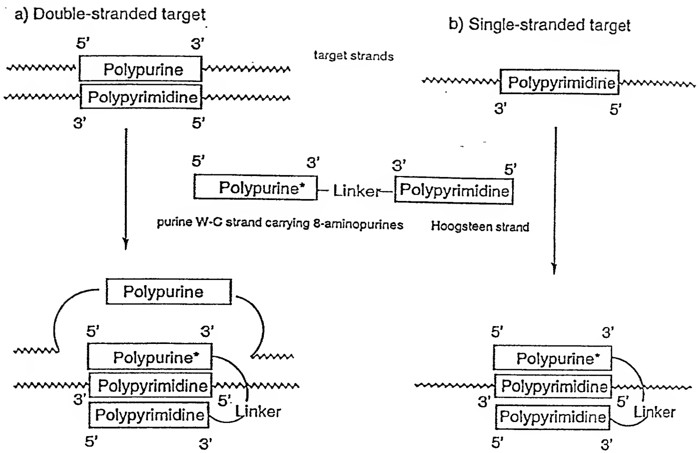

a) Double-stranded target
b) Single-stranded target
target strands
5'
3'
Polypurine
Polypyrimidine
3'
5'
Polypyrimidine
3'
5'
5'
3'
3'
5'
Polypurine*
Linker
Polypyrimidine
purine W-C strand carrying 8-aminopurines
Hoogsteen strand
Polypurine
5'
3'
Polypurine*
Polypyrimidine
3'
5'
Polypyrimidine
Linker
5'
3'
5'
3'
Polypurine*
Polypyrimidine
3'
5'
Polypyrimidine
Linker
5'
3'

FIGURE 3

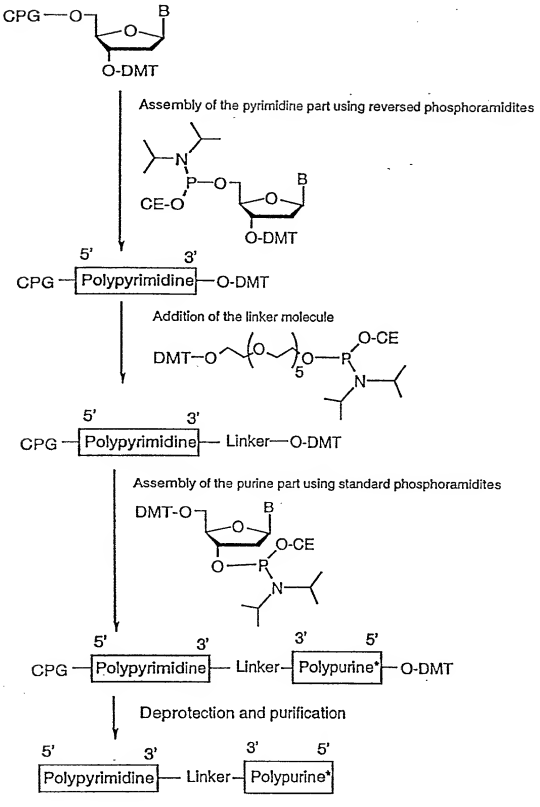


FIGURE 4

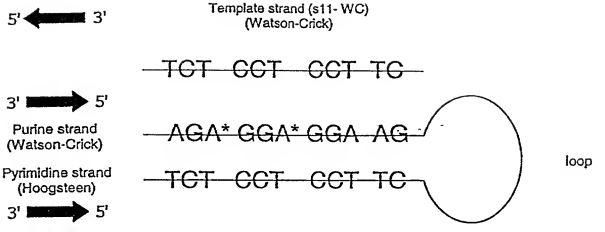


FIGURE 5

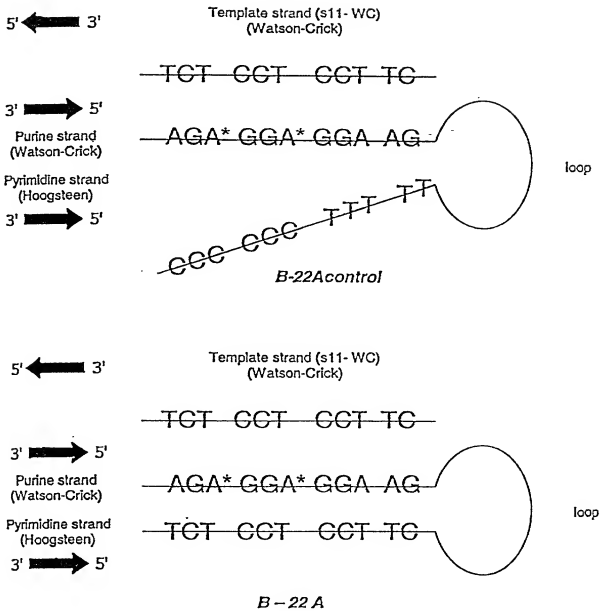

5' 3'
Template strand (s11- WC)
(Watson-Crick)
TCT GCT GCT TC
3' 5'
Purine strand
(Watson-Crick)
AGA* GGA* GGA AG
Pyrimidine strand
(Hoogsteen)
3' 5'
CCC CCC TTT TT
loop
B-22Acontrol
5' 3'
Template strand (s11- WC)
(Watson-Crick)
TCT GCT GCT TC
3' 5'
Purine strand
(Watson-Crick)
AGA* GGA* GGA AG
Pyrimidine strand
(Hoogsteen)
TCT CCT CCT TC
3' 5'
loop
B – 22 A

FIGURE 6

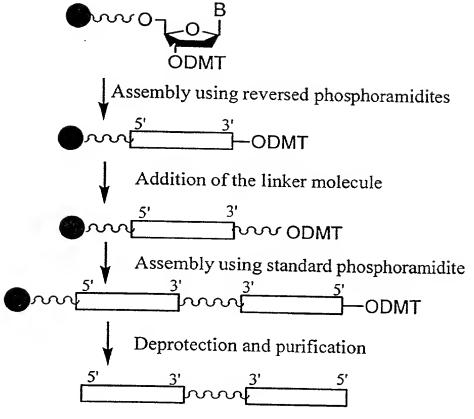


Figure 7A

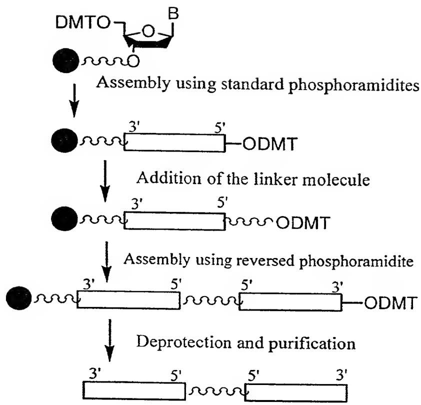

DMTO
O
B
Assembly using standard phosphoramidites
3'
5'
ODMT
Addition of the linker molecule
3'
5'
ODMT
Assembly using reversed phosphoramidite
3'
5'
5'
3'
ODMT
Deprotection and purification
3'
5'
5'
3'

Figure 7B

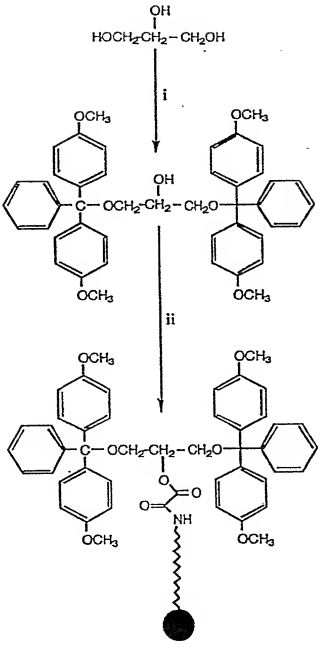


Figure 8

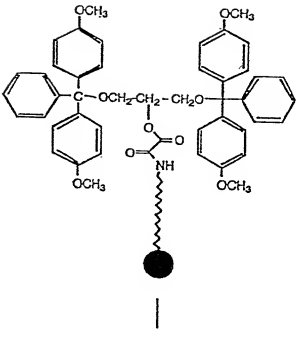


FIGURE 9A

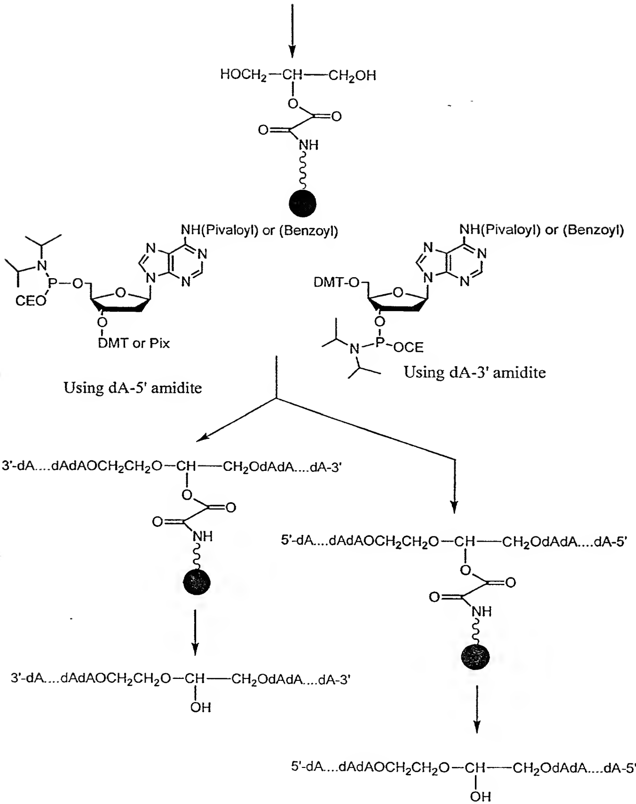

HOCH2—CH—CH2OH
NH(Pivaloyl) or (Benzoyl)
CEO
DMT or Pix
Using dA-5' amidite
DMT-O
OCE
Using dA-3' amidite
3'-dA....dAdAOCH2CH2O—CH—CH2OdAdA....dA-3'
5'-dA....dAdAOCH2CH2O—CH—CH2OdAdA....dA-5'
OH

Figure 9B

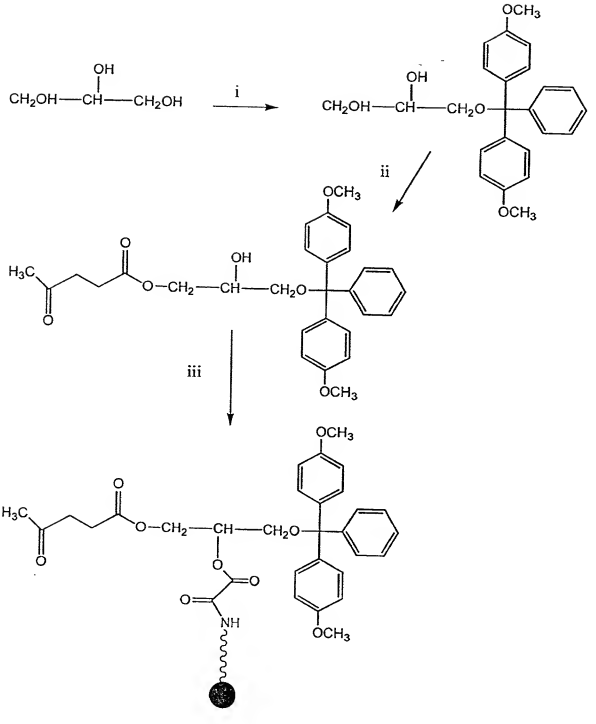


Figure 10

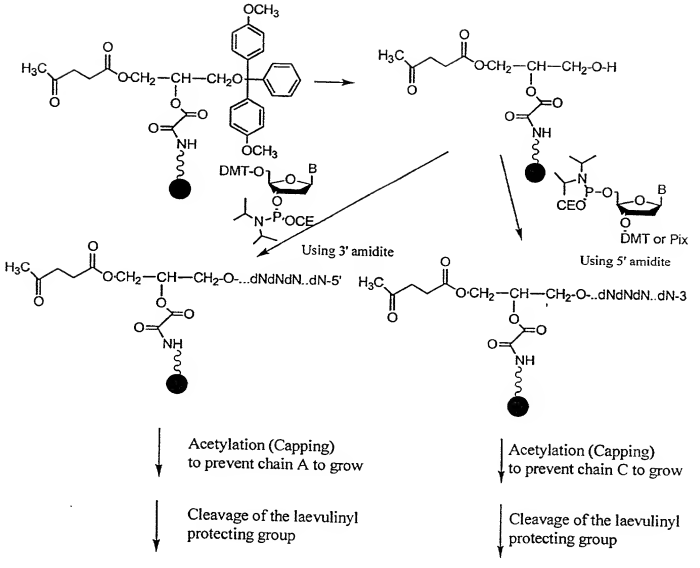


Figure 11A

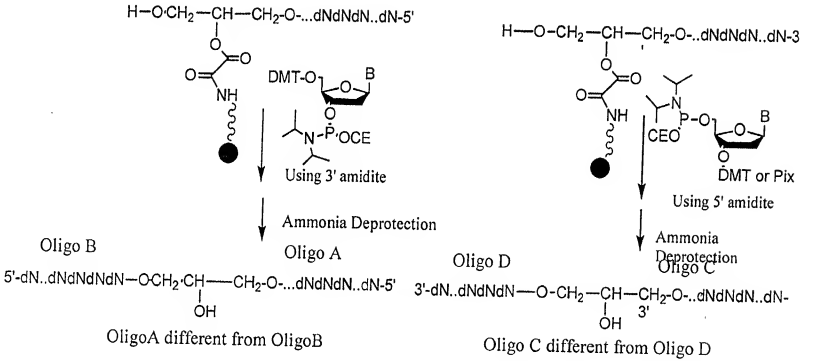


Figure 11B

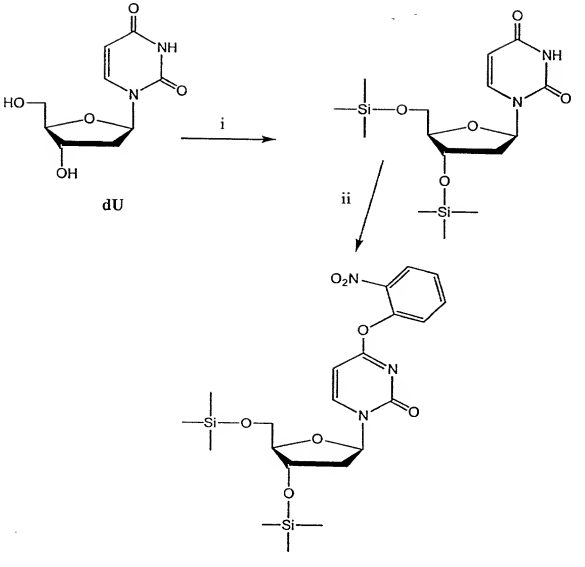


FIGURE 12

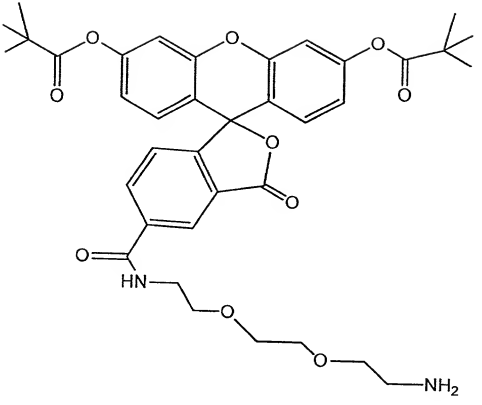


Figure 13

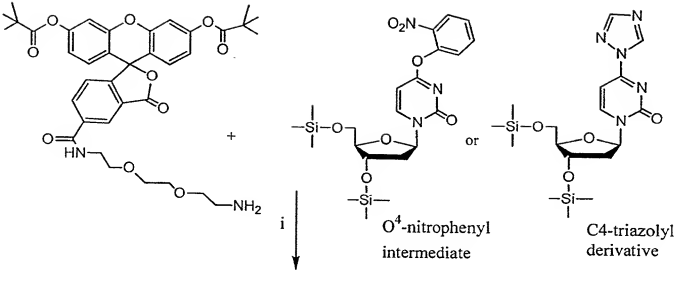


Figure 14A

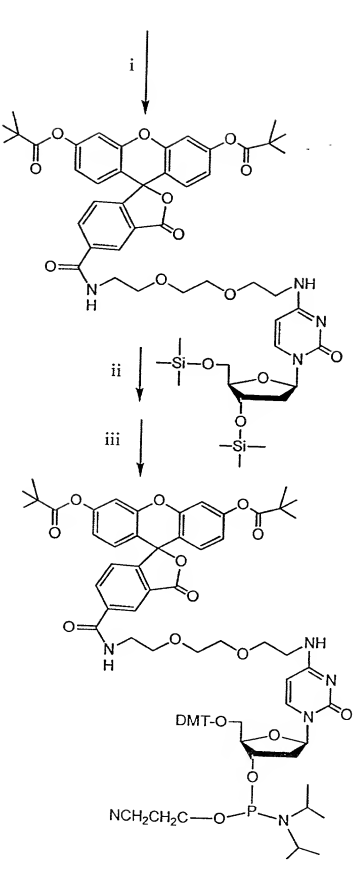


Figure 14B

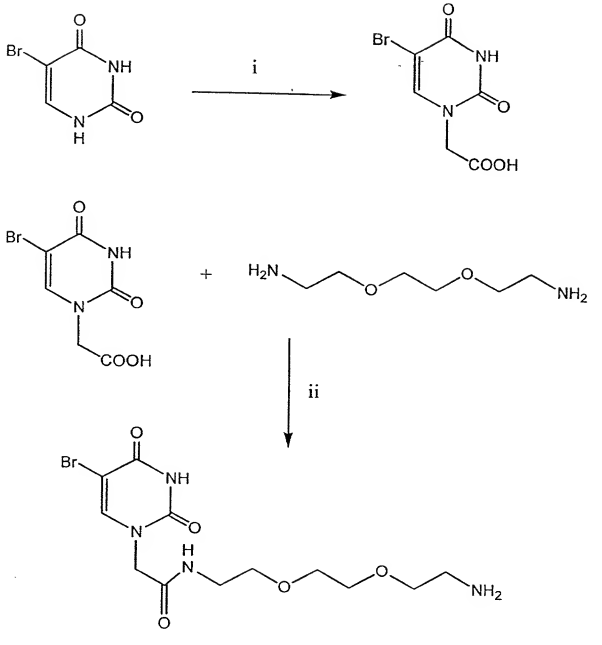


Figure 15

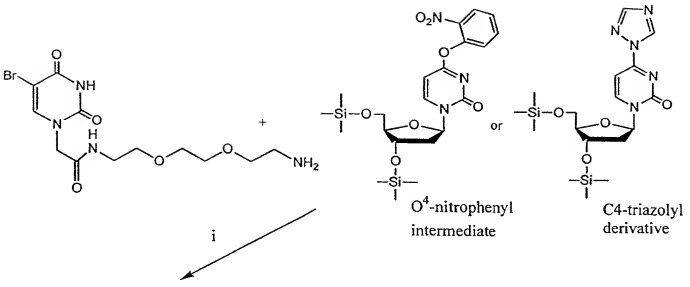


Figure 16A

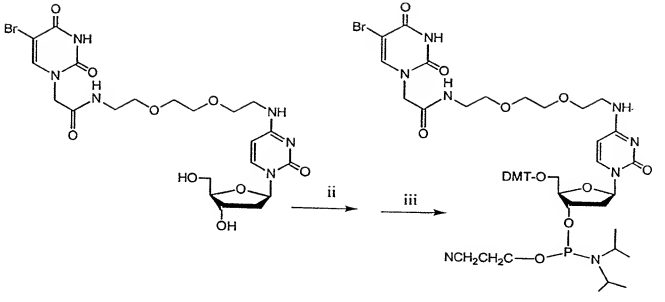


Figure 16B

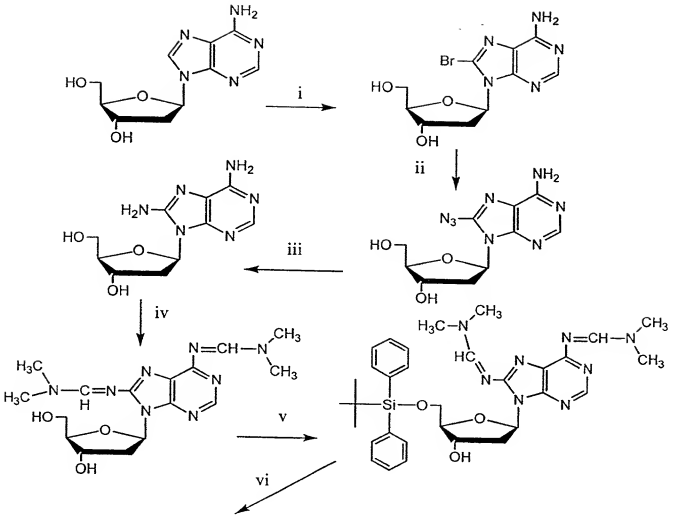


Figure 17A

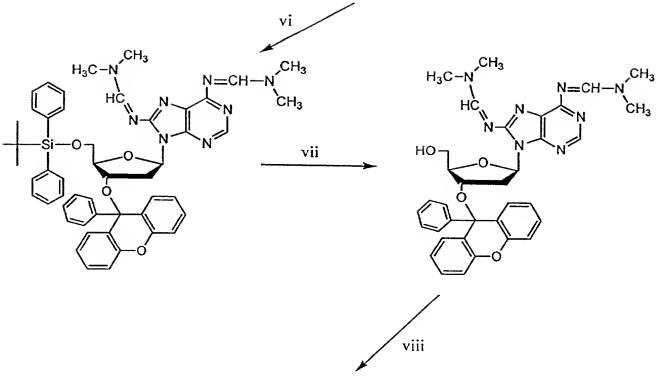


Figure 17B

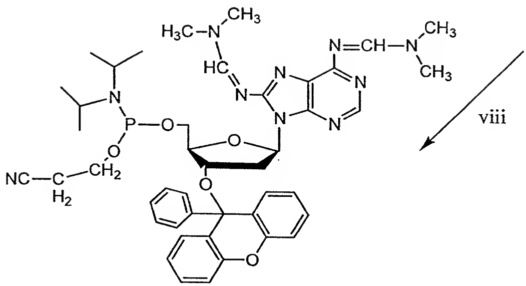


Figure 17C

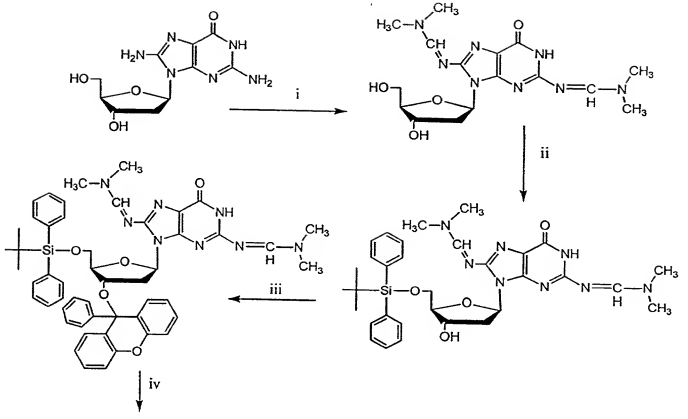


Figure 18A

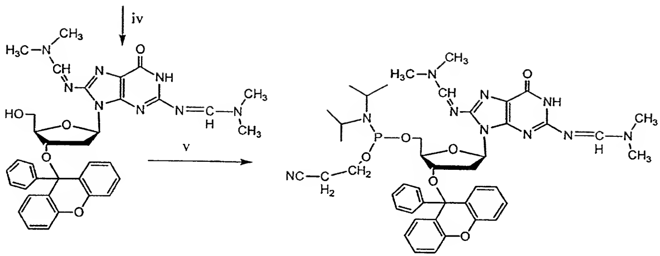


Figure 18B

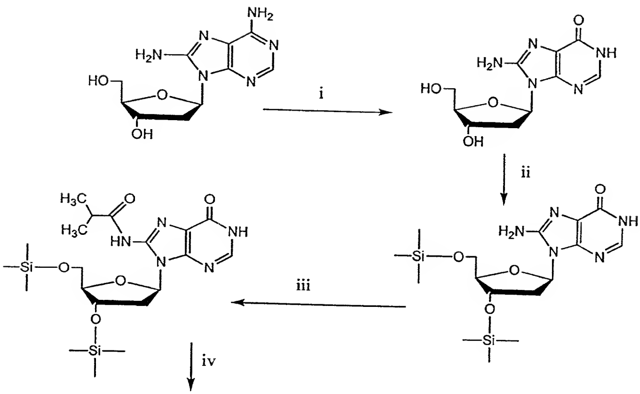


Figure 19A

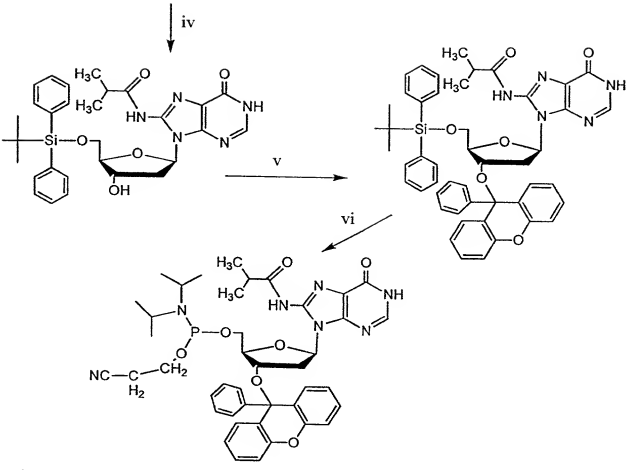


Figure 19B

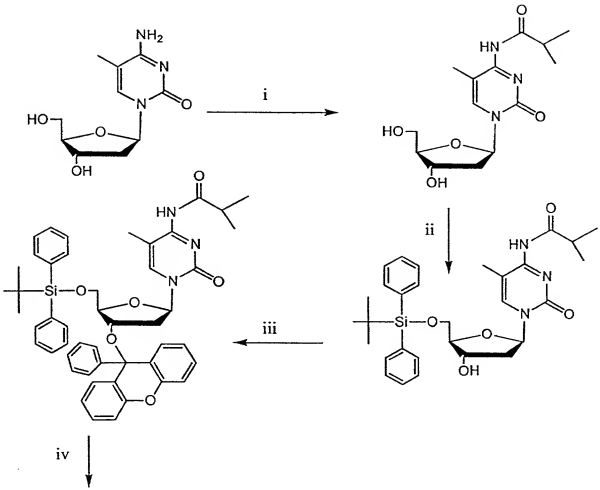


Figure 20A

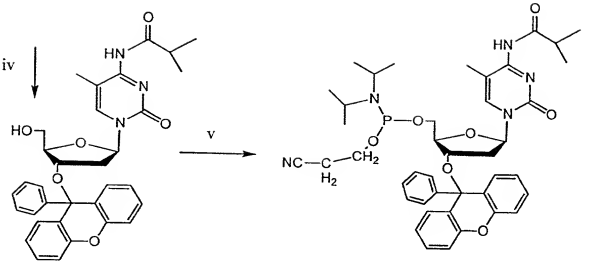


Figure 20B

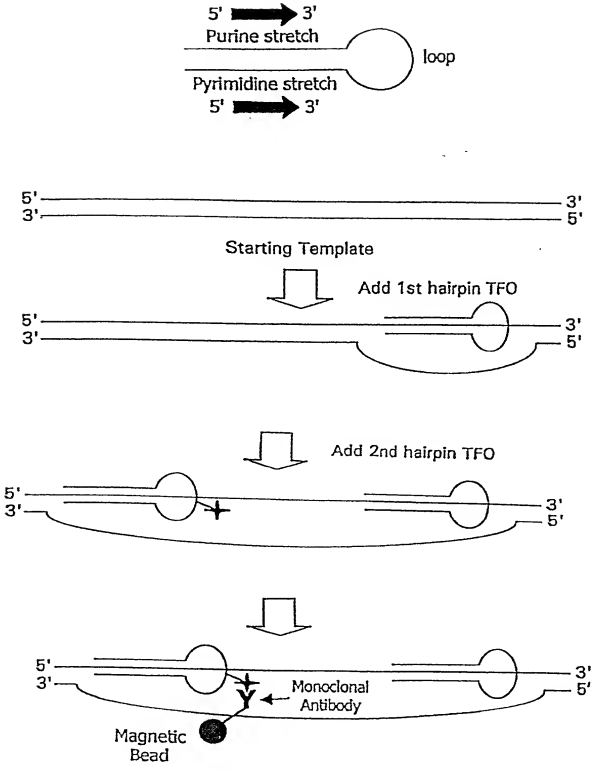


FIGURE 21A

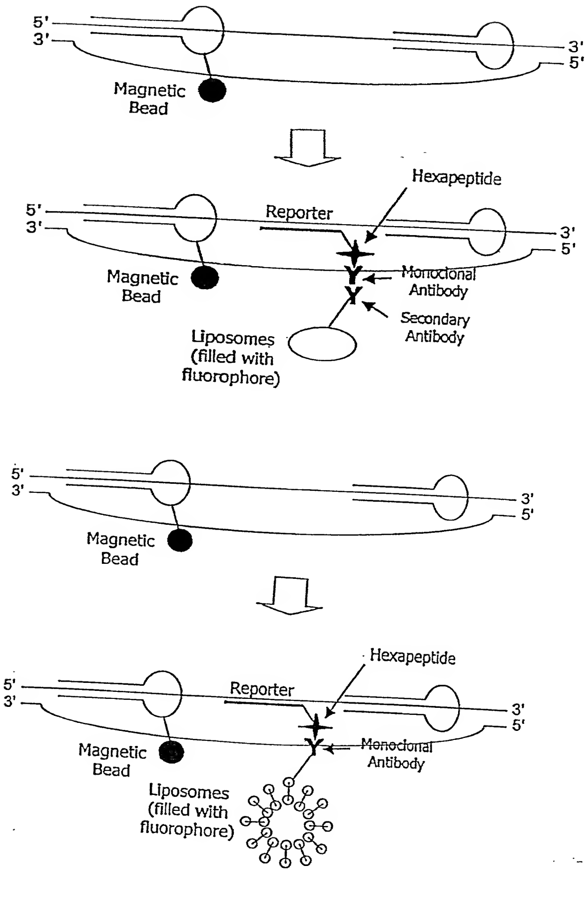
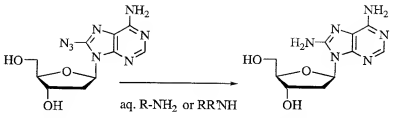


FIGURE 21B



8-azido-dA 8-amino-dA

$R\text{-}NH_2$ = 40% aq. CH_3NH_2, 1M aq. $NH_2\text{-}(CH_2)_6\text{-}NH_2$,
1M aq. $NH_2\text{-}[(CH_2)_2\text{-}O]_2\text{-}(CH_2)_2\text{-}NH_2$, 1M aq. $NH_2\text{-}(CH_2)_2\text{-}S\text{-}S\text{-}(CH_2)_2\text{-}NH_2$

$RR'\text{-}NH_2$ = 40% $(CH_3)_2NH$, 1M aq. piperidine

(dA is defined as 2'deoxyadenosine.)

FIGURE 22

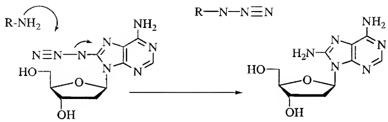
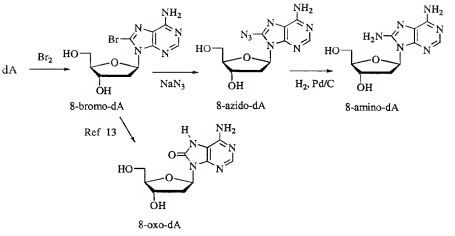


FIGURE 23



(dA is defined as 2'deoxyadenosine.)

FIGURE 24

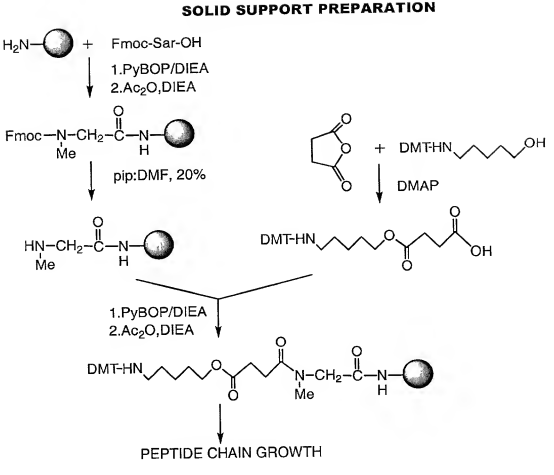


FIGURE 25

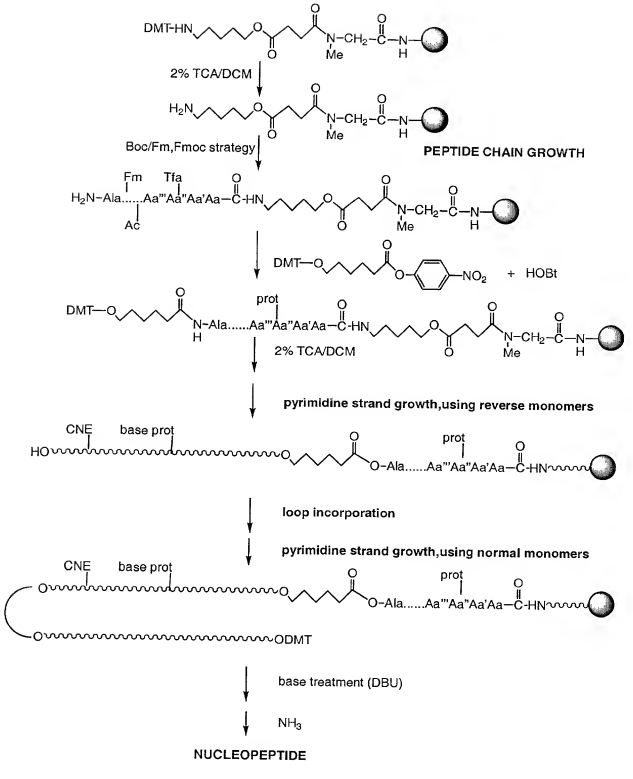


FIGURE 26

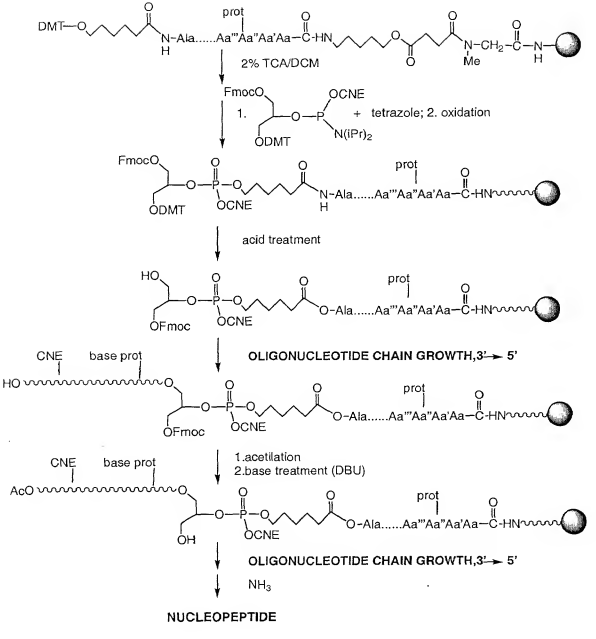

DMT—O
N-Ala.....Aa'''Aa''Aa'Aa—C-HN
prot
2% TCA/DCM
FmocO
OCNE
1.
+ tetrazole; 2. oxidation
ODMT
N(iPr)2
acid treatment
HO
OFmoc
OCNE
CNE
base prot
OLIGONUCLEOTIDE CHAIN GROWTH,3'→ 5'
1.acetilation
2.base treatment (DBU)
AcO
OH
NH3
NUCLEOPEPTIDE

FIGURE 27